

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND the claims as follows:

1. (CURRENTLY AMENDED) An interface device for performing data transmission with a further device coupled to a network at any of a plurality of transmission rates that are regulated, the interface device comprising:

a transmission rate control circuit configured to generate a switch signal that changes an operation speed of the interface device when the transmission rate must be switched; ~~and~~

a clock generation circuit configured to change a frequency in response to the switch signal and generate a clock signal having the changed frequency; and

a register adapted to store first information of a transmission capacity of the interface device itself, second information of a transmission rate that is presently possible, and third information of a transmission rate to be switched to next,

wherein the interface device negotiates with the further device using the first, second, and third information to determine a transmission rate, and the transmission rate control circuit changes the operation speed of the interface device in accordance with the determined transmission rate~~;~~

wherein the register stores information for a mode for maintaining the present transmission rate after a bus reset, which occurs after data transmission according to the determined transmission rate, or information for a mode for switching to a transmission rate enabling a minimum speed transmission operation after the bus reset, as fourth information, and

wherein the fourth information is transferred to the further device from the interface device during the negotiation.

2. (ORIGINAL) The interface device of claim 1, wherein the switching of the transmission rate is executed when data transmission to the further device is required or when a request to switch to a different transmission rate is received from the further device.

3 (ORIGINAL) The interface device of claim 1, wherein the transmission rate control circuit switches to a transmission rate enabling low-speed transmission during low-speed transmission and switches to a transmission rate enabling high-speed transmission when high-speed transmission is required.

4. (ORIGINAL) The interface device of claim 1, wherein the transmission rate control circuit switches to a transmission rate enabling minimum speed transmission operation when starting operation for connection to the network or when data is not being transmitted.

5. (CANCELLED)

6. (CANCELLED)

7. (CURRENTLY AMENDED) The interface device of claim 6~~1~~, wherein the information stored in the register is changeable by a bus reset.

8. (WITHDRAWN) A method for controlling an interface device for performing data transmission with other devices coupled to a network at any of a plurality of transmission rates that are regulated, the method comprising:

providing the interface device and each device that are configured to change its own operation speed;

changing an operation speed of each device and the interface device from a low-speed transmission rate to a high-speed transmission rate when switching to a high-speed transmission rate is required and each device included in a route to a transmission destination is compatible for the high-speed transmission,

wherein the interface device includes a transmission rate control circuit and a clock generation circuit, and a register, and said changing operation speeds of each device and the interface device includes:

the transmission rate control circuit generating a switch signal that changes an operation speed of the interface device; and

the clock generation circuit changing a frequency in response to the switch signal to generate a clock signal having the changed frequency;

the interface device adapted to store first information of a transmission capacity of the interface device itself, second information of a transmission rate that is presently possible, and third information of a transmission rate to be switched to next into the register; and

the interface device negotiating with the other devices using the first, second, and third information to determine a transmission rate,

wherein the changing the operation speed of each device and the interface device includes changing the operation speed of each device and the interface device in accordance with the determined transmission rate.

9. (WITHDRAWN) The method for controlling an interface device of claim 8, further comprising:

determining whether the high-speed transmission is required or not after the high-speed transmission ends;

setting information for a mode for continuing high speed transmission when the high-speed transmission is required, and setting information for a mode for switching to a transmission rate enabling minimum speed transmission operation when the high-speed transmission is not required.

10. (WITHDRAWN) The method for controlling an interface device of claim 9 further comprising generating a bus reset after the high-speed transmission ends, and individually changing the respective setting of the operation modes of each device and the interface device itself with the bus reset.

11. (CURRENTLY AMENDED) A method, comprising:

configuring a transmission rate control circuit to change operation speed of at least one of a plurality of devices when a transmission rate must be switched;

changing the operation speed of the at least one of the plurality of devices based on the configured transmission rate control circuit; and

registering first information of a transmission capacity of the interface device itself, second information of a transmission rate that is presently possible, and third information of a transmission rate to be switched to next,

wherein said configuring the transmission rate control circuit includes configuring the transmission rate control circuit to generate a switch signal that changes the operation speed of

the interface at least one of a plurality of device, the method further comprising:

configuring a clock generation circuit to change a frequency in response to the switch signal to generate a clock signal having the changed frequency; and

the plurality of devices negotiating with each other using the first, second, and third information to determine a transmission rate,

wherein registering the first, second, and third information includes registering information for a mode for maintaining the present transmission rate after a bus reset, which occurs after data transmission according to the determined transmission rate, or information for a mode for switching to a transmission rate enabling a minimum speed transmission operation after the bus reset, as fourth information, and

wherein the fourth information is transferred to other devices from the at least one of the plurality of devices during the negotiation

~~wherein the changing the operation speed of the at least one of the plurality of devices includes changing the operation speed of each device in accordance with the determined transmission rate.~~

12. (WITHDRAWN) An interface device comprising:

an input/output port, coupled to a network, inputting data to another interface device or outputting the data from the another interface device through the network at any of a plurality of transmission rates; and

a transmission rate control circuit changing an operation speed of the interface device from a low speed to a high speed in the case that a switching of the transmission rate is requested, and returning an operation speed of the interface device from the high speed to the low speed in the case that an operating state of the interface device is reset,

wherein the transmission rate control circuit controls whether or not the operation speed is returned based on a negotiation between the interface device and the another interface device.

13. (WITHDRAWN) The interface device according to claim 12, wherein

the negotiation is executed before a bus reset for updating a network configuration including the interface device and the another interface device, and the reset of the operating state of the interface device is executed by the bus reset.

14. (NEW) The interface device according to claim 1,  
wherein the interface device rewrites the second information of a transmission rate that is presently possible into the third information of a transmission rate to be switched to next when a bus reset is performed.

15. (NEW) The interface device according to claim 1,  
wherein the interface device sends the second information of a transmission rate that is presently possible instead of the third information of a transmission rate to be switched to next when maintaining a transaction presently being executed, and rewrites the third information of a transmission rate to be switched to next into information of a transmission rate requested by the further device when not maintaining the transaction presently being executed.

16. (NEW) The method according to claim 11 further comprising of rewriting the second information of a transmission rate that is presently possible into the third information of a transmission rate to be switched to next when a bus reset is performed.

17. (NEW) The method according to claim 11 further comprising of:  
sending the second information of a transmission rate that is presently possible instead of the third information of a transmission rate to be switched to next when maintaining a transaction presently being executed; and  
rewriting the third information of a transmission rate to be switched to next into information of a transmission rate requested by the other devices when not maintaining the transaction presently being executed.